

**REMARKS**

Claims 1, 4, 6, 8, 24 and 25 are pending in this application. By this Amendment, claim 1 is amended, claim 5 is canceled, and claims 24 and 25 are added. Support for the new claims and amendments to the claims may be found, for example, in the specification at page 9, lines 20-24, page 24, lines 25 to page 25, line 2, the Examples at pages 29-37, and in the original claims. No new matter is added.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

**I. Interview**

The courtesies extended to Applicants' representatives by Examiners Gugliotta and Sample at the interview held May 15, 2009, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below and constitute Applicants' record of the interview.

**II. Rejections Under 35 U.S.C. §103**

**A. Ishihara in view of Stobbe; and Stobbe in view of Ishihara**

The Office Action rejects claims 1, 4-6 and 8 under 35 U.S.C. §103(a) over EP 1251247 to Ishihara et al. (hereinafter "Ishihara") in view of WO 00/01463 to Stobbe et al. (hereinafter "Stobbe") and rejects claims 1, 4-6 and 8 under 35 U.S.C. §103(a) over Stobbe in view of Ishihara. By this Amendment claim 5 canceled, rendering its rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

Without conceding the propriety of the rejection, claim 1 is amended to contain the subject matter of canceled claim 5. The applied references, alone or in combination, fail to teach or to have rendered obvious, or establish any reason or rationale to provide such a combination of features. Additionally, there is no reason or rationale found in the applied references or otherwise asserted on the record establishing why one of ordinary skill in the art

at the time of the invention would have modified the teachings of the applied references and arrived at the subject matter of amended claim 1 with a reasonable expectation of success.

Ishihara is directed to honeycomb structures comprising a plurality of cells, predetermined cells being plugged by a plugging material at one end face, and remaining cells being plugged by the plugging material at the other end face. The Office Action acknowledges that Ishihara fails to disclose the use of silicon carbide. See Office Action, page 3.

Stobbe discloses that the advantages of silicon carbide, such as high strength, etc., (noted by the Office Action at page 3), are obtained by forming a pure SiC structure as a result of the ultra-fine SiC powder evaporating at the high sintering temperature and condensing in the grain contact points between the larger Mesh 180 grain (emphasis added). See Stobbe, page 17, lines 20-22. The Office Action asserts that it would have been obvious to combine Ishihara and Stobbe because of the advantages of silicon carbide as taught by Stobbe. In the absence of such asserted advantages, the record fails to establish or suggest any other objective reason to combine the teaching of the applied references, which is necessary to establish a *prima facie* case of obviousness. See MPEP §2143.01(IV).

However, Applicants respectfully submit that there is no teaching or suggestion in Stobbe that the above-mentioned advantages of SiC (noted by the Office Action) could or would be obtained under circumstances where a pure or almost entirely SiC honeycomb structure is not present. Therefore, in order to obtain the advantages set forth in Stobbe one of ordinary skill in the art would need to produce a filter body of substantially pure SiC.

Stobbe also discloses that due to the high mechanical strength of a filter body consisting almost entirely of SiC, thin filtering walls may be obtained; however, Stobbe discloses the wall thickness may be 0.5-10mm, preferably 0.8-2mm (see Stobbe, page 9, lines 4-9), which is 1.25 times thicker than the thickest honeycomb structure within the scope of

claim 1 and, thus, clearly outside the thickness range recited in amended claim 1. Thus, the combination of references fails to suggest or establish any reason or rationale to provide the combination of features of claim 1. Thus, for at least the above reasons Ishihara in view of Stobbe fails to have rendered obvious claim 1.

With regard to Stobbe in view of Ishihara, Ishihara fails to disclose the use of silicon carbide and, thus, fails to cure the above deficiencies of Stobbe because the applied references fail to establish that there would have been a reasonable expectation of successfully achieving a honeycomb structure wherein the plugging material comprises silicon carbide and the thickness of the cell wall is 400µm or less, as required by amended claim 1.

Thus, either Ishihara in view of Stobbe or Stobbe in view of Ishihara fail to establish there is a reasonable expectation of successfully achieving the claimed honeycomb structure because the only motivation for using silicon carbide comes from Stobbe, which indicates the advantages of using silicon carbide are obtained by forming an almost entirely pure SiC structure in which a wall thickness may be 0.5-10mm. This thickness range is clearly outside the current claimed cell wall thickness range. Accordingly, the applied references, either alone or in combination, fail to establish that there would have been a reasonable expectation of successfully achieving a honeycomb structure wherein the plugging material comprises silicon carbide and the thickness of the cell wall is 400µm or less, as required by amended claim 1.

Clearly, the only motivation for modifying the applied references in the manner asserted by the Office Action, in order to practice the claimed invention, improperly comes from Applicant's own disclosure.

The patentability of the current claims is also supported by unexpected results. the specification states that materials having a high strength or Young's Modulus, like silicon carbide, are discouraged because when these materials are used as the plugging material the

end face of a honeycomb structure may be cracked. See specification at page 9, lines 20-27 and page 24, lines 25 to page 25, line 2. However, the data in Table 3, which reflects that no cracking occurs when the porosity of the SiC is increased to greater than 105%, demonstrates unexpected results. Such results are not observed or suggested in the prior art and are unexpected.

Therefore, for at least the reasons discussed above, claim 1 would not have been rendered obvious by Ishihara and Stobbe; or Stobbe and Ishihara, alone or in combination. Claims 4, 6, and 8 depend from claim 1 and, thus, also would not have been rendered obvious by Ishihara and Stobbe; or Stobbe and Ishihara. Accordingly, reconsideration and withdrawal of the rejection are earnestly solicited.

**B. Ichikawa in view of Stobbe; or Stobbe in view of Ichikawa**

The Office Action rejects claims 1, 4-6 and 8 under 35 U.S.C. §103(a) over U.S. Patent No. 5,595,581 to Ichikawa et al. (hereinafter "Ichikawa") in view of Stobbe and rejects claims 1, 4-6 and 8 under 35 U.S.C. §103(a) over Stobbe in view of Ichikawa. By this Amendment claim 5 is canceled, rendering its rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

Without conceding the propriety of the rejection, claim 1 is amended to contain the subject matter of canceled claim 5. The applied references, alone or in combination, fail to teach or to have rendered obvious, or establish any reason or rationale to provide such a combination of features. Additionally, there is no reason or rationale found in the applied references or otherwise asserted on the record establishing why one of ordinary skill in the art at the time of the invention would have modified the teachings of the applied references and arrived at the subject matter of amended claim 1 with a reasonable expectation of success.

Ichikawa is directed to honeycomb structures comprising a plurality of cells, each cell being surrounded by cell walls and functioning as a fluid passage, predetermined cells being

plugged by a plugging material at one end face, and remaining cells being plugged by the plugging material at the other end face. The Office Action acknowledges that Ichikawa fails to disclose the use of silicon carbide, as well as a cell wall thickness of 400µm or less. See Office Action, pages 5 and 8.

As discussed above, Stobbe discloses that the advantages of silicon carbide, such as high strength, etc., (noted by the Office Action at page 3), are obtained by forming a pure SiC structure as a result of the ultra-fine SiC powder evaporating at the high sintering temperature and condensing in the grain contact points between the larger Mesh 180 grain (emphasis added). See Stobbe, page 17, lines 20-22. In the absence of such asserted advantages, the record fails to establish any objective reason to combine the teaching of the applied references, which is necessary to establish a *prima facie* case of obviousness. See MPEP §2143.01(IV).

Applicants respectfully submit that there is no teaching or suggestion in Stobbe that the above-mentioned advantages of SiC (noted by the Office Action) could or would be obtained under circumstances where a pure or almost entirely SiC honeycomb structure is not present. Therefore, in order to obtain the advantages set forth in Stobbe one of ordinary skill in the art would need to produce a filter body of pure SiC.

As stated above, Ichikawa fails to disclose the use of silicon carbide or the thickness of the cell wall being 400µm or less. Stobbe discloses that due to the high mechanical strength of a filter body consisting almost entirely of SiC, thin filtering walls may be obtained; however, Stobbe discloses the wall thickness may be 0.5-10mm, preferably 0.8-2mm (see Stobbe, page 9, lines 4-9), which is thicker than the 430 µm cell wall disclosed in Ichikawa and also 1.25 times thicker than the thickest honeycomb structure within the scope of claim 1 and, thus, clearly outside the thickness range recited in amended claim 1. Thus, the combination of references fails to suggest or establish any reason or rationale to provide

the combination of features of claim 1. Thus, for at least the above reasons Ichikawa in view of Stobbe fails to have rendered obvious claim 1.

With regard to Stobbe in view of Ichikawa, Ichikawa fails to disclose the use of silicon carbide or the thickness of the cell wall being 400 $\mu$ m or less and, thus, fails to cure the above deficiencies of Stobbe because the applied references fail to establish that there would have been a reasonable expectation of successfully achieving a honeycomb structure wherein the plugging material comprises silicon carbide and the thickness of the cell wall is 400 $\mu$ m or less, as required by amended claim 1.

Thus, either Ichikawa in view of Stobbe or Stobbe in view of Ichikawa fail to establish there is a reasonable expectation of successfully achieving the claimed honeycomb structure because the only motivation for using silicon carbide comes from Stobbe, which indicates the advantages of using silicon carbide are obtained by forming an almost entirely pure SiC structure in which a wall thickness may be 0.5-10mm. This thickness range is clearly outside the current claimed cell wall thickness range. Accordingly, the applied references, either alone or in combination, fail to establish that there would have been a reasonable expectation of successfully achieving a honeycomb structure wherein the plugging material comprises silicon carbide and the thickness of the cell wall is 400 $\mu$ m or less, as required by amended claim 1.

Clearly, the only motivation for modifying the applied references in the manner asserted by the Office Action, in order to practice the claimed invention, improperly comes from Applicant's own disclosure.

As stated above, the patentability of the current claims is also supported by unexpected results. The specification states that materials having a high strength or Young's Modulus, like silicon carbide, are discouraged because when these materials are used as the plugging material the end face of a honeycomb structure may be cracked. See specification at

page 9, lines 20-27 and page 24, lines 25 to page 25, line 2. However, the data in Table 3, which reflects that no cracking occurs when the porosity of the SiC is increased to greater than 105%, demonstrates unexpected results. Such results are not observed or suggested in the prior art and are unexpected.

Therefore, for at least the reasons discussed above, claim 1 would not have been rendered obvious by Ichikawa and Stobbe; or Stobbe and Ichikawa, alone or in combination. Claims 4, 6, and 8 depend from claim 1 and, thus, also would not have been rendered obvious by Ichikawa and Stobbe; or Stobbe and Ichikawa. Accordingly, reconsideration and withdrawal of the rejection are earnestly solicited.

### **III. New Claims**

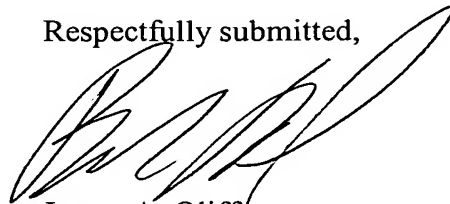
By this Amendment, new claims 24 and 25 are presented. New claims 24 and 25 depend from claim 1 and, thus, distinguish over the applied references for at least the reasons discussed above with respect to claim 1. Prompt examination and allowance of new claims 24 and 25 are respectfully requested.

### **IV. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Benjamin S. Prebyl  
Registration No. 60,256

JAO:BSP

Attachment:  
Request for Continued Examination

Date: June 3, 2009

**OLIFF & BERRIDGE, PLC**  
**P.O. Box 320850**  
**Alexandria, Virginia 22320-4850**  
**Telephone: (703) 836-6400**

<p><b>DEPOSIT ACCOUNT USE AUTHORIZATION</b> Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
---